इंटरनेट मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

"जानने का अधिकार, जीने का अधिकार"
Mazdoor Kisan Shakti Sangathan
"The Right to Information, The Right to Live"

"पुराने को छोड नये के तरफ"
Jawaharlal Nehru
"Step Out From the Old to the New"

IS 9026 (2004): Rope Threaded Percussive Long-Hole Drilling Equipment [MED 21: Diamond Core and Waterwell Drilling]

"ज्ञान से एक नये भारत का निर्माण"
Satyanarayan Gangaram Pitroda
"Invent a New India Using Knowledge"

Act Number 22 of 2005
The Indian Parliament
RIGHT TO INFORMATION

Made Available By
Public.Resource.Org

"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

BLANK PAGE

BRUTUM FULMEN

IGNORANTIA JURIS NON EXCUSAT

PROTECTED BY COPYRIGHT

भारतीय मानक

लम्बे छेद के वेधन उपस्करों की अपधायक चूड़ीदार रस्सी — विशिष्टि

(पहला पुनरीक्षण)

Indian Standard

ROPE THREADED PERCUSSIVE LONG-HOLE DRILLING EQUIPMENTS — SPECIFICATION

(First Revision)

ICS 73.100.30

© BIS 2004

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

June 2004

Price Group 7

Diamond Core and Water Well Drilling Sectional Committee, ME 21

FOREWORD

This Indian Standard (First Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Diamond Core and Water Well Drilling Sectional Committee had been approved by the Mechanical Engineering Division Council.

This standard was first published in 1978. The experience gained in implementation of the standard necessitated the present revision.

In the preparation of this standard considerable assistance has been derived from the following standards:

ISO 10207 : 1991	Rock drilling equipment — Rope threaded drill steel equipment for percussive drilling, nominal sizes 22 mm to 38 mm.
ISO 10208 : 1991	Rock drilling equipment — Left hand rope threads.

The composition of the Committee responsible for the formulation of this standard is given in Annex A.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard

Indian Standard
ROPE THREADED PERCUSSIVE LONG-HOLE DRILLING EQUIPMENTS — SPECIFICATION
(First Revision)

1 SCOPE

This standard covers the dimensions and requirements for percussive long-hole drilling equipment having rope type threads.

2 REFERENCES

The following standards contain provisions, which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All the standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
4005 : 1967	Specification for tungsten carbide for mining tools
7456 : 1994	Rock drill shanks and chuck bushing — Dimensions (*first revision*)
8986 : 1994	Percussive drilling — Drilling steels in bar form — Dimensions (*first revision*)

3 TERMINOLOGY

For the purpose of this standard, the following definitions shall apply.

3.1 Nominal Size of Rods — The rod section shall be either round or hexagonal. The width of hexagonal rods across the flats is equivalent to the corresponding size of round rod that refers to the diameter of rod incase of round rod and to the width across the flats of hexagonal section of hexagonal rods.

The hexagonal rods have a larger cross-sectioned area and contain more material for a given nominal size.

3.2 Type of Rods

3.2.1 *Shank Rods*

Drill rods with an integral shank at one end and a thread at the other end.

3.2.2 *Extension Rods*

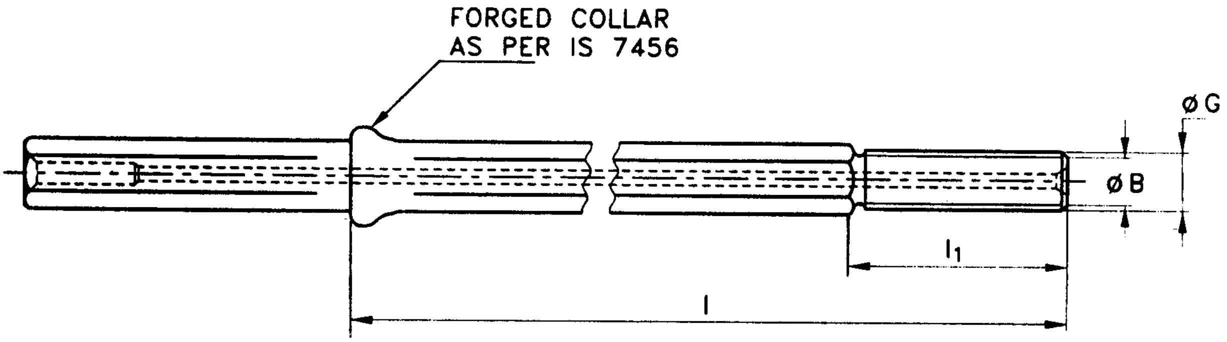
Ordinary extension rods have the same thread dimension at both ends. They are available in two designs, male threads at both ends or a female thread at one end and a male thread at the other end.

3.2.3 *Light Extension Rods*

On light extension rods, the rod section (usually hexagonal) is smaller than the thread section, which is bumped up before the thread is turned.

4 DIMENSIONS

4.1 Dimensions for Shank Rods



All dimensions in millimetres.

Sl No. (1)	Designation of Component (2)	Designation of Drill Steel 1) (3)	Nominal Size of Shank 2) (4)	*l* ±25 3) (5)	*B* ±0.7 (6)	l_1 ±1 (7)	Nominal Size of Thread *G* (8)
i)	SR22H10	22AH	22×108	1 000	16.5	71.5	22
ii)	SR25H10L	22AH	25×108	1 000	20.0	80	25
iii)	SR25H10	25AH	25×159	1 000	20.0	80	25
iv)	SR28H10L	25AH	28×159	1 000	22.8	80	28
v)	SR28H10	28AH	28×159	1 000	22.8	80	28
vi)	SR32H10L	32AH	32×159	1 000	26.3	80	32

1) *See* IS 8986.

2) *See* **4.6** of IS 7456 for dimensions of threads.

3) Shank rods may also be supplied in lengths of 1 800 mm, 2 600 mm and 3 400 mm.

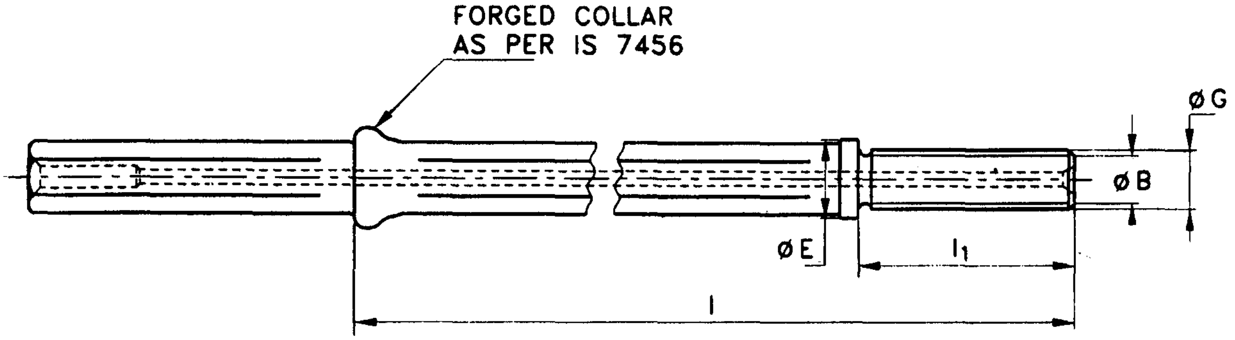
Designation

A shank rod (SR) having nominal size of thread as 22 mm of hexagonal shape (H), length (*l*) = 1 800 mm (18) and conforming to this standard, shall be designated as:

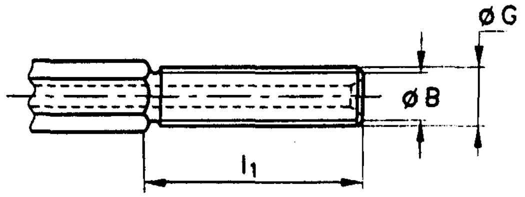
SR 22 H 18 IS 9026

4.2 Dimensions for Shank Adaptors

4.2.1 *Hexagonal Shank Adaptors*



EQUIPMENT LIGHT (L)



All dimensions in millimetres.

Sl No.	Designation of Component	Designation of Drill Steel[1]	Nominal Size of Shank[2]	l ±25	B ±0.7	l_1 ±1	E	Nominal Size of Thread G[3]
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	SA25H02L	22AH	22×108	255	19.4	81	26	25
ii)	SA25H02B	25AH	25×108	255	19.4	81	—	25
iii)	SA25HO2C	25AH	25×159	255	19.4	81	—	25

[1] *See* IS 8986.

[2] *See* IS 7456.

[3] For dimensions of threads, *see* **4.6**.

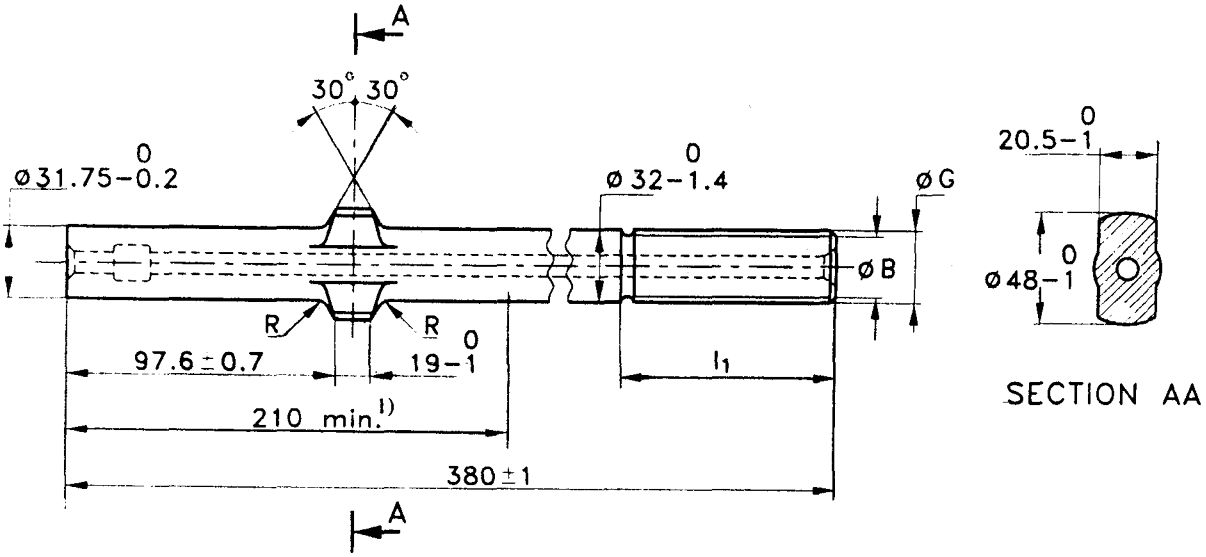
Designation

A shank adaptor (SA) having nominal size of thread as 25 mm of hexagonal shape (H), length (l) = 255 mm (02) of light type shank 22 × 108 (*L*) and conforming to this standard shall be designated as:

SA 25 H 02 L IS 9026

If the shank adaptor is required with size of shank as 25 × 108 (*B*) or 25 × 159 (*C*), the letter '*L*' in the above designation shall be replaced by the letter '*B*' or '*C*', as appropriate.

4.2.2 *Round (Lug Shank Type) Shank Adaptors*



All dimensions in millimetres.

Sl No.	Designation of Component	Nominal Size of Thread [2] *G*	*B* ±0.7	*l*₁ ±1	*R* *Max*	Flushing Tube	
						Outside Dia ± 0.1	Entry Length *Max*
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	SA25R03	25	19.4	81	4	10	82.5
ii)	SA28R03	28	21.5	81	4	10	82.5
iii)	SA32R03	32	25.6	81	4	10	82.5

[1] This refers to the length for which diameter is $32^{0}_{-1.4}$ mm.

[2] *See* **4.6** for dimensions of threads.

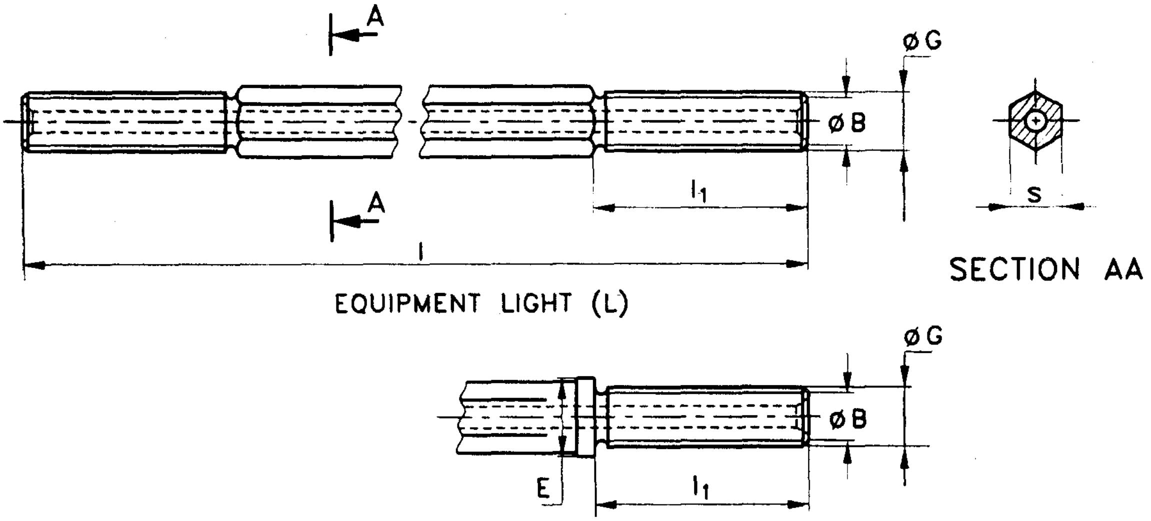
Designation

A shank adaptor (SA) having nominal size of thread as 32 mm of round shape (R), length (*l*) = 380 mm (03) and conforming to this standard, shall be designated as:

SA 32 R 03 IS 9026

4.3 Dimensions for Extension Rods

4.3.1 *Hexagonal Extension Rods*



All dimensions in millimetres.

Sl No.	Designation of Component	Designation of Drill Steel $s^{1)}$	Nominal Size of Thread $G^{2)}$	*B* ±0.7	*E* *Min*	*l*	Tolerance on *l*	l_1 ±1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	ER22H08	22AH	22	16.5	—	800	±10	71.5
ii)	ER22H16	22AH	22	16.5	—	1 600	±10	71.5
iii)	ER22H24	22AH	22	16.5	—	2 400	±10	71.5
iv)	ER22H32	22AH	22	16.5	—	3 200	±10	71.5
v)	ER25H09L	22AH	25	19.4	26	915	±25	81
vi)	ER25H12L	22AH	25	19.4	26	1 220	±25	81
vii)	ER25H18L	22AH	25	19.4	26	1 830	±25	81
viii)	ER25H24L	22AH	25	19.4	26	2 435	±25	81
ix)	ER25H09	25AH	25	19.4	—	915	±10	81
x)	ER25H12	25AH	25	19.4	—	1 220	±10	81
xi)	ER25H18	25AH	25	19.4	—	2 435	±10	81
xii)	ER25H24	25AH	25	19.4	—	2 435	±10	81
xiii)	ER28H12L	25AH	28	25.6	28	1 220	±25	81
xiv)	ER28H18	25AH	28	25.6	28	1 830	±25	81
xv)	ER32H12	25AH	32	25.6	32	1 220	±25	81
xvi)	ER28H09L	25AH	32	25.6	32	915	±25	81
xvii)	ER32H12L	25AH	32	25.6	32	1 220	±25	81
xviii)	ER32H15L	25AH	32	25.6	32	1 525	±25	81
xix)	ER32H18L	25AH	32	25.6	32	1 830	±25	81
xx)	ER32H24L	25AH	32	25.6	32	2 435	±25	81

1) *See* IS 8986.

2) *See* **4.6** for dimensions of threads.

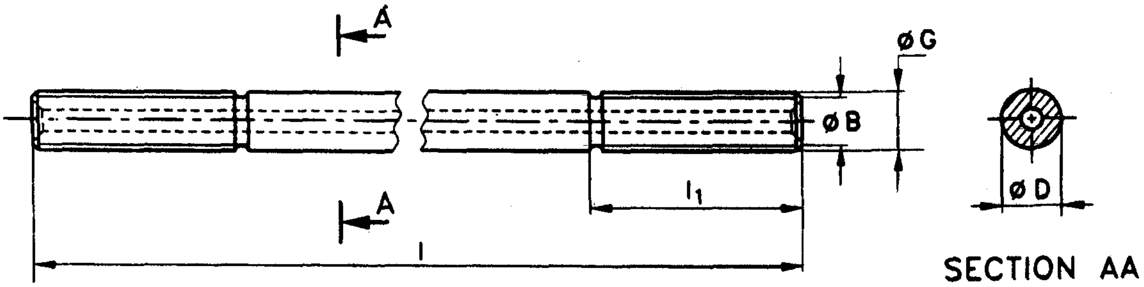
Designation

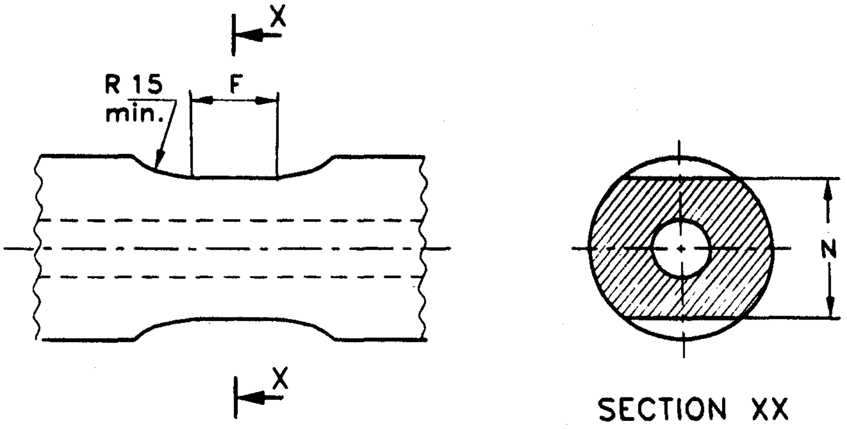
An extension rod (ER) having nominal size of thread as 25 mm of hexagonal shape (H), length (*l*) = 1 220 mm (12) and conforming to this standard, shall be designated as:

ER 25 H 12 IS 9026

If the shank rod required is of 'light type' the letter '*L*' shall be added at the end of the designation.

4.3.2 *Round Extension Rods*





All dimensions in millimetres.

Sl No.	Designation of Component	Designation of Drill Steel[1] *D*	Nominal Size of Thread[2] *G*	*B* ±0.7	*l* 10	l_1 ±1	*F* *Min*	*N* $^{0}_{-0.4}$
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
i)	ER32R09	32R	32	25.6	915	81	15	25.6
ii)	ER32R12	32R	32	25.6	1 220	81	15	25.6
iii)	ER32R18	32R	32	25.6	1 830	81	15	25.6
iv)	ER32R24	32R	32	25.6	2 435	81	15	25.6
v)	ER32R30	32R	32	25.6	3 050	81	15	25.6
vi)	ER38R30	38R	38	31.4	3 050	92	20	32.3
vii)	ER38R36	38R	38	31.4	3 650	92	20	32.3
viii)	ER45R30	45R	45	37.4	3 050	102	25	38.6
ix)	ER45R36	45R	45	37.4	3 660	102	25	38.6
x)	ER50R30	50R	50	41.5	3 050	102	35	45.4
xi)	ER50R30	50R	50	41.5	6 095	102	35	45.4

[1] *See* IS 8986.

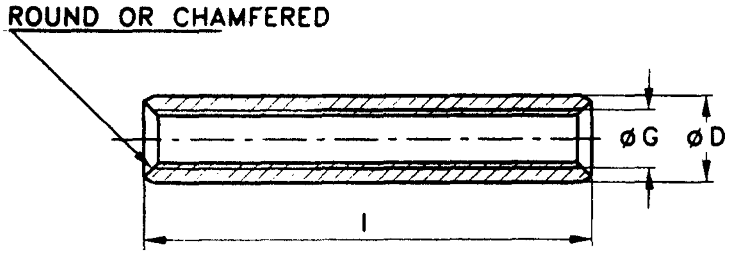
[2] *See* **4.6** for dimensions of threads.

Designation

An extension rod (ER) having nominal size of thread as 32 mm of round shape (R), length (*l*) = 1 830 mm (18) and conforming to this standard, shall be designated as:

ER 32R H 18 IS 9026

4.4 Dimensions for Coupling Sleeves



All dimensions in millimetres.

Sl No.	Designation of Component	Nominal Size of Thread [1] G	D Max	l 0 −1
(1)	(2)	(3)	(4)	(5)
i)	CS22	22	32	140
ii)	CS25	25	37	160
iii)	CS32	32	45	160
iv)	CS38	38	56	180
v)	CS45	45	67	200
vi)	CS50	50	78	200

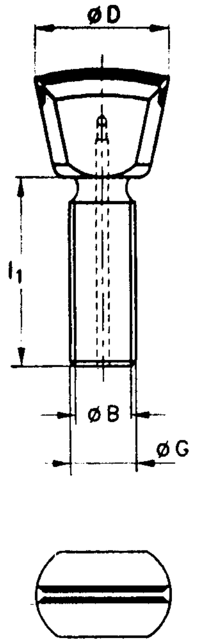
[1] *See* **4.6** for dimensions of threads.

Designation

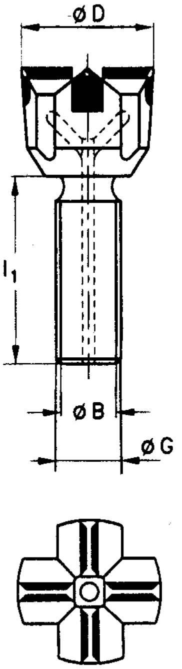
A coupling sleeve (CS) having nominal size of thread as 25 mm and conforming to this standard, shall be designated as:

CS 25 IS 9026

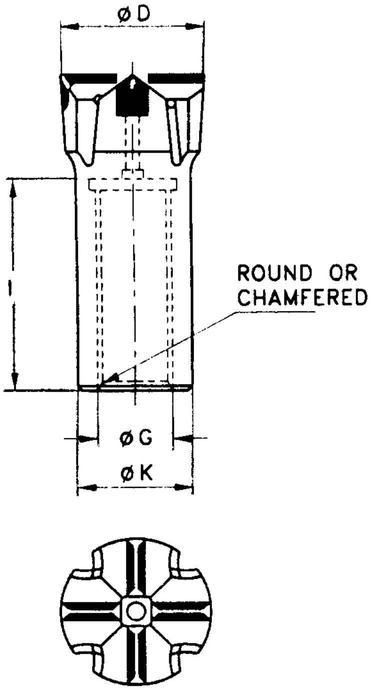
4.5 Dimensions of Drill Bits

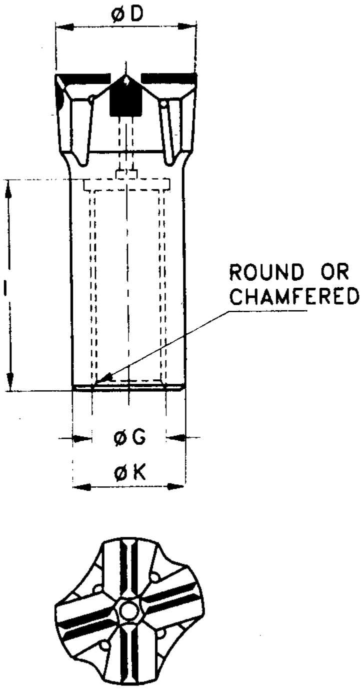


CHISEL DESIGN (C)



FOUR WING BIT, CROSS DESIGN (CR) FOR 22 mm SIZE





K max. = D−5mm

FOUR WING BIT, CROSS DESIGN (CR) FOR 25 AND 32 mm SIZE

FOUR WING BIT, X-DESIGN (X)

All dimensions in millimetres.

Sl No.	Designation of Component	Nominal Size of Thread[1)] G	B ±0.7	D	Tolerance on D	l Max	l_1 ±1
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
i)	DB22C36	22	16.5	36	+0.3 –0.1	—	71.5
ii)	DB22C38	22	16.5	38	+0.3 –0.1	—	71.5
iii)	DB22C41	22	16.5	41	+0.3 –0.1	—	71.5
iv)	DB22CR35	22	16.5	34.92	+0.3 0	—	71.5
v)	DB22CR38	22	16.5	38.10	+0.3 0	—	71.5
vi)	DB22CR41	22	16.5	41.28	+0.3 0	—	71.5
vii)	DB25CR41	25	—	41.28	+0.3 0	80	—
viii)	DB25CR45	25	—	44.45	+0.3 0	80	—
ix)	DB25CR50	25	—	50.80	+0.3 0	80	—
x)	DB32CR48	32	—	47.62	+0.3 0	80	—
xi)	DB32CR50	32	—	50.80	+0.3 0	80	—
xii)	DB32CR57	32	—	57.15	+0.3 0	80	—
xiii)	DB32CR64	32	—	63.50	+0.3 0	80	—
xiv)	DB38X64	38	—	63.50	+0.6 0	90	—
xv)	DB38X70	38	—	69.85	+0.6 0	90	—
xvi)	DB38X75	38	—	76.20	+0.6 0	90	—
xvii)	DB38X90	38	—	88.90	+0.6 0	90	—
xviii)	DB45X100	45	—	101.60	+1.0 0	100	—
xix)	DB50X90	50	—	88.90	+0.6 0	100	—
xx)	DB45X100	50	—	101.60	+0.6 0	100	—
xxi)	DB50X115	50	—	114.30	+1.0	100	—

[1)] *See* **4.6** for dimensions of threads.

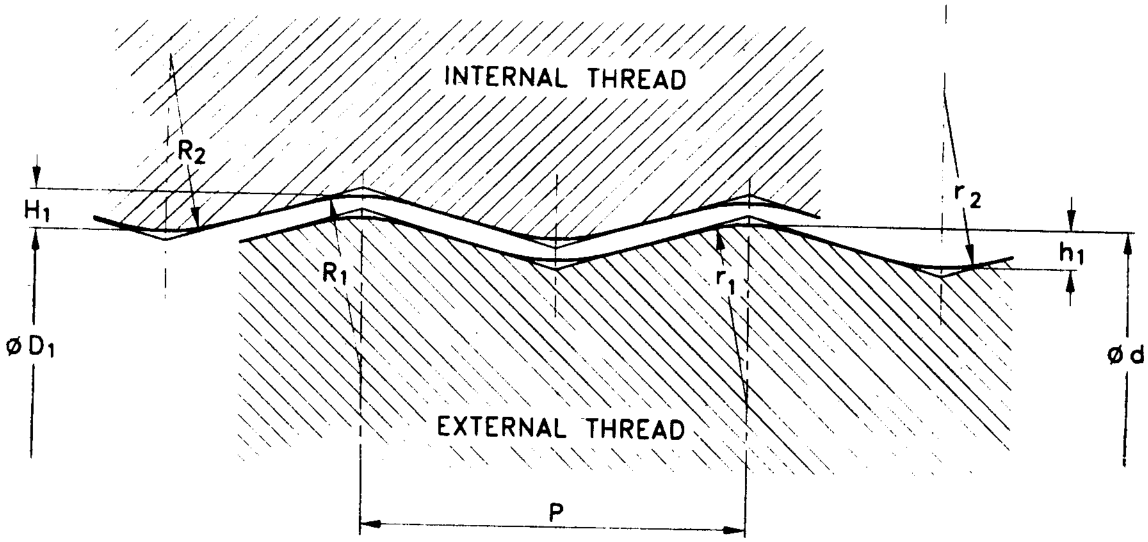
Designation

A drill bit (DB) having nominal size of thread as 22 mm of chisel design (C), diameter, $D = 36$ mm and conforming to this standard, shall be designated as:

DB 22 C 36 IS 9026

If the drill bit is required with cross design (CR) or X-design (X), the letter 'C' in the above designation shall be replaced by the letter 'CR' or 'X', as appropriate.

4.6 Dimensions of Threads



All dimensions in millimetres.

Sl No.	Nominal Size of Thread	Internal Threads					External Threads				Pitch P
		D_1 $^{+0.25}_{0}$	H_1 $^{+0.2}_{0}$	$R_1 \pm 0.4$	$R_2 \pm 0.4$	d	Tolerance on d	h_1 $^{+0.2}_{0}$	r_1 0.4	$r_2 \pm 0.4$	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
i)	22	18.86	1.5	5.5	6	21.84	0 −0.15	1.5	5.5	6	12.7
ii)	25	21.76	1.5	5.5	6	24.74	0 −0.15	1.5	5.5	6	12.7
iii)	32	28.36	1.5	5.5	6	31.34	0 −0.15	1.5	5.5	6	12.7
iv)	38	35.01	1.5	5.5	6	37.99	0 −0.20	1.5	5.5	6	12.7
v)	45	40.71	1.9	4.3	5.2	44.49	0 −0.20	1.9	4.3	5.2	12.7
vi)	50	47.01	1.5	5.5	6	49.99	0 −0.20	1.5	5.5	6	12.7

5 CORRELATION OF COMPONENTS

Correlation of components shall be as given in Table 1.

Table 1 Correlation of Components
(*Clause* 5)

Nominal Size of Threads	**22**	**25**		**32**		**38**	**45**	**50**
Designation of drill steel in bar form	22AH	22AH	25AH	25AH	32R	38R	45R	50R
Designation of shank rods	SR22H10	—	—	—	—	—	—	—
	SR22H18	—	—	—	—	—	—	—
	SR22H26	—	—	—	—	—	—	—
	SR22H34	—	—	—	—	—	—	—
Designation of shank adaptors	—	SA25H02L	SA25H02B	—	—	—	—	—
Hexagonal	—	—	SA25H02C	—	—	—	—	—
Round (lug shank type)	—	SA25R03	SA25R03	SA32R03	SA32R03	—	—	—
Designation of extension rods	ER22H08	—	—	—	—	—	—	—
	—	ER25H09L	ER25H09	ER32H09L	ER32R09	—	—	—
	—	ER25H12L	ER25H12	ER32H12L	ER32R12	—	—	—
	—	—	—	ER32H15L	—	—	—	—
	ER22H16	—	—	—	—	—	—	—
	—	ER25H18L	ER25H18	ER32R18L	ER32R18	—	—	—
	ER22H24	ER25H24L	ER25H24	ER32H24L	ER32R24	—	—	—
	—	—	—	—	ER32R30	ER38R30	ER45R30	ER50R30
	ER22H32	—	—	—	—	—	—	—
	—	—	—	—	—	ER38R36	ER45R36	ER50R60
Designation of coupling sleeves	CS22	CS25	CS25	CS32	CS32	CS38	CS45	CS50
Designation of drill bits	DB22C36	—	—	—	—	—	—	—
	DB22CR35	—	—	—	—	—	—	—
	DB22C38	—	—	—	—	—	—	—
	DB22CR38	—	—	—	—	—	—	—
	DB22C41	—	—	—	—	—	—	—
	DB22CR41	DB25CR41	DB25CR41	—	—	—	—	—
	—	DB25CR45	DB25CR45	—	—	—	—	—
	—	—	—	DB32CR48	DB32CR48	—	—	—
	—	DB25CR50	DB25CR50	DB32CR50	DB32CR50	—	—	—
	—	—	—	DB32CR57	DB32CR57	—	—	—
	—	—	—	DB32CR64	DB32CR64	DB38X64	—	—
	—	—	—	—	—	DB38X70	—	—
	—	—	—	—	—	DB38X75	—	—
	—	—	—	—	—	DB38X90	—	DB50X90
	—	—	—	—	—	—	DB45X100	DB50X100
	—	—	—	—	—	—	—	DB50X115

6 MATERIAL

6.1 The rods and coupling sleeves shall be manufactured from any high quality, high resistance to fatigue torsion, wear and impact resistant steel. The material used shall be at the option of manufacturer who shall provide its composition if so desired by the purchaser. The shank shall be surface hardened.

6.2 The tips shall be manufactured from tungsten carbide conforming to Grade T or XT of IS 4005.

6.3 Carbon Content

Shank rod shall have high carbon content while extension rods and couplings shall have low carbon content. They are hardened by high frequency surface hardening or by carburization.

7 GENERAL REQUIREMENTS

7.1 Straightness

The rods shall be in a straight condition such that when the body only is laid on a flat surface and rotated, no point on the line of contact is more than 3 mm above the surface for lengths up to 2 m and prorata for lengths above 2 m.

7.2 The threads of the drill rods shall be concentric with the body.

7.3 The rods and the couplings shall be free from undue surface decarburization, cracks and other defects.

7.4 The tips of the bits shall be free from pitting.

7.5 The centre hole and threads of the components shall be adequately protected against choking, erosion and damage during transit and/or storage.

8 MARKING

8.1 Every component of the percussive long-hole drilling equipment shall be marked with the following:

a) Thread size;
b) Shape and length of component;
c) Bit gauge, if applicable; and
d) Manufacturer's name or trade-mark, month and year of manufacture and type of steel shall be embossed at the collar of the shank.

NOTE — Instead of (a) to (c) the designation as specified in the dimensional tables may be marked.

8.2 BIS Certification Marking

8.2.1 The rope threaded percussive long-hole drilling equipment may also be marked with the Standard Mark.

8.2.2 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act*, 1986 and the Rules and Regulations made thereunder. The details of conditions under which a licence for the use of the Standard Mark may be granted to the manufacturers or producers may be obtained from the Bureau of Indian Standards.

ANNEX A

(*Foreword*)

COMMITTEE COMPOSITION

Diamond Core and Water Well Drilling Sectional Committee, ME 21

Organization	*Representative(s)*
Geological Survey of India, Kolkata	Shri R. Sundararajan (***Chairman***) Shri V. K. Kansal (*Alternate*)
Atlas Copco (India) Ltd, Pune	Shri S. Datta Majumdar
Atomic Minerals Directorate for Exploration and Research, Hyderabad	Shri O. P. Sahu Shri A. B. Anand (*Alternate*)
Central Ground Water Board, Faridabad	Shri C. P. Gawri Shri Ashish Chakravorty (*Alternate*)
Greaves Limited, Mumbai	Shri D. Swaminathan Shri C. W. Godbole (*Alternate*)
Indian Pump Manufacturers Association, Mumbai	Shri S. B. Patil Shri S. L. Abhyankar (*Alternate*)
Indian School of Mines, Dhanbad	Shri C. K. Jain
Ingersoll-Rand (India) Ltd, Bangalore	Shri P. Suresh Rao Shri V. Venkatesan (*Alternate*)
Johnsons Screens (India) Ltd, Ahmedabad	Shri Dharmesh Mashru
Kishore Vadilal Pvt Limited, Ahmedabad	Shri S. K. Parikh Shri K. V. Parikh (*Alternate*)
Kores (India) Ltd, New Delhi	Shri V. Gupta Shri P. R. Agal (*Alternate*)
Mineral Exploration Corporation Ltd, Nagpur	Shri Ninan Oommen Shri S. Dhar (*Alternate*)
Mines and Geological Department, Udaipur	Shri Himmat S. Bordia Shri M. Singh Chauhan (*Alternate*)
Public Health Engineering Department, Government of M.P., Bhopal	Shri Ramakant Dube Shri Sachidanand Mishra (*Alternate*)
Rockdrill (India), Jodhpur	Shri M. K. Gupta Shri K. K. Gupta (*Alternate*)
The Singareni Collieries Co Ltd, Kothagudem	Shri Y. Narayana Murthy Shri V. Nageswara Rao (*Alternate*)
The Southern India Engineering Manufacturers Association, Coimbatore	Shri G. Rajendran Shri R. R. Jagannathan (*Alternate*)
Widia (India) Ltd, Bangalore	Shri S.V. Prasant Shri N. Bhaskar Reddy (*Alternate*)
BIS Directorate General	Shri M. L. Chopra, Director and Head (MED) [Representing Director General (*Ex-officio*)]

Member Secretary
Shri P. Venkateswara Rao
Joint Director (MED), BIS

Bureau of Indian Standards

BIS is a statutory institution established under the *Bureau of Indian Standards Act*, 1986 to promote harmonious development of the activities of standardization, marking and quality certification of goods and attending to connected matters in the country.

Copyright

BIS has the copyright of all its publications. No part of these publications may be reproduced in any form without the prior permission in writing of BIS. This does not preclude the free use, in the course of implementing the standard, of necessary details, such as symbols and sizes, type or grade designations. Enquiries relating to copyright be addressed to the Director (Publication), BIS.

Review of Indian Standards

Amendments are issued to standards as the need arises on the basis of comments. Standards are also reviewed periodically; a standard along with amendments is reaffirmed when such review indicates that no changes are needed; if the review indicates that changes are needed, it is taken up for revision. Users of Indian Standards should ascertain that they are in possession of the latest amendments or edition by referring to the latest issue of 'BIS Catalogue' and 'Standards: Monthly Additions'.

This Indian Standard has been developed from Doc: No. ME 21 (0658).

Amendments Issued Since Publication

Amend No.	Date of Issue	Text Affected

BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones: 2323 0131, 2323 3375, 2323 9402

Telegrams: Manaksanstha
(Common to all offices)

Regional Offices:		Telephone
Central	: Manak Bhavan, 9 Bahadur Shah Zafar Marg NEW DELHI 110002	2323 7617 2323 3841
Eastern	: 1/14 C.I.T. Scheme VII M, V.I.P. Road, Kankurgachi KOLKATA 700054	2337 8499, 2337 8561 2337 8626, 2337 9120
Northern	: SCO 335-336, Sector 34-A, CHANDIGARH 160022	60 3843 60 9285
Southern	: C.I.T. Campus, IV Cross Road, CHENNAI 600113	2254 1216, 2254 1442 2254 2519, 2254 2315
Western	: Manakalaya, E9 MIDC, Marol, Andheri (East) MUMBAI 400093	2832 9295, 2832 7858 2832 7891, 2832 7892
Branches	: AHMEDABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. NAGPUR. NALAGARH. PATNA. PUNE. RAJKOT. THIRUVANANTHAPURAM. VISAKHAPATNAM.	

Printed at Simco Printing Press, Delhi